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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,668	02/19/2004	Youichirou Sugino	020581A	1984

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EXAMINER

DICUS, TAMRA

ART UNIT PAPER NUMBER

1774

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/780,668

Applicant(s)

SUGINO ET AL.

Examiner

Tamra L. Dicus

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2-19-04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The IDS is acknowledged.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is not clear as it lacks antecedent basis because claim 8 recites "an additional adhesive layer", however, there is not a first adhesive layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 18-20, 22-23, and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,818,624 to Downey, Jr.

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Downey teaches a polarizer comprising a stretched polyvinyl alcohol film alone further laminated to a variety of protective supports including a triacetylcellulose such as cellulose acetate butyrate or polyester such as polyethylene terephthalate (PET) via a polyvinyl alcohol (PVA) or polyurethane adhesive (col. 2, line 25-col. 3, line 11) forming a polarizing plate having a thickness per instant claims 1-8, 22 and 26-29. The film thickness ranges from 0.038 to 0.051 mm (col. 2, lines 32-35), converted is 38-51 microns, 20-50 microns, not more than 60 microns, not more than 75 microns, and at most 60 microns of instant claims 20, 23, 26. The support is between 0.038 and 0.051 mm thick (col. 2, lines 55-65).

Regarding the A/B relationship, because the protective film thickness falls within the Applicant's range (taught by Downey above), and the polarizer thickness falls within Applicant's range, it would have been obvious to have modified the polarizer of Downey to satisfy the A/B relationship of instant claims 8-9, as they are conventional thicknesses used in a polarizer.

Regarding the shrinkage factor, while Downey does not refer to a shrinkage factor per se, Downey does teach the single polarizer containing stretched PVA film should shrink slightly noting reduced shrinkage after subjecting the film to elevated temperatures 120 - 200 degrees F for 24 hours (col. 2, lines 25-35, col. 3, lines 48-59, col. 4, lines 15-22, and Table I). Thus this teaching meets the recitation of a shrinkage force of at most 4.0 N/cm or from 1.0 to 3.7 N/cm of the polarizer alone per instant claims 1, and 18-19 ("insubstantial amount" meets "at most 4.0 N/cm"). The dimensional change rate of not more than $\pm 0.7\%$ in a longitudinal direction (MD) after being heated at 70°C for 120 hours (instant claim 9), is inherent as the same material, and similar conditions are provided by Downey.

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Regarding claims 25-29, Downey teaches dying the hydrophilic PVA film in a treating bath (water), stretching the film due to heating (swelling treatment), treating the film with a dye such as iodine, and curing with a silylation of PVA using silane and organosilane compounds, boric acid and fuming hydrochloric acid (crosslinking treatment and agent as Applicant's disclose on page 1, line 15 and page 17, line 26 of the specification), and drying the film (see col. 2, lines 30-68, col. 3, lines 15-39, col. 4, line 15-col. 5, line 20, col. 6, lines 25-60) (instant claims 25-26). To instant claims 25-26, a dye such as iodide is present (col. 3, lines 17-18). Regarding the claims to processes such as stretching, relaxing, and drying steps (claims 25-29), these are process limitations in a product claim. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on the article itself and not the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown*, 459 F. 2d 531. Both Applicant's and prior art reference's product are the same.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,818,624 to Downey, Jr.

Downey essentially teaches the claimed invention as relied upon above. While Downey does teach the polarizer has a thickness from about 0.038 to about 0.051, converted is 38 to 51 microns, Downey does not teach the polarizer is thinner (between 10-18 microns). However, it would have been obvious to one having ordinary skill in the art to produce a thinner polarizer using less material, thereby making a lighter and cost effective product.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,818,624 to Downey, Jr. in view of USPN 6,064,457 to Aminaka.

Downey essentially teaches the claimed invention as relied upon above.

Downey does not teach a PVA having a saponification degree of at least 75 mol% or the average polymerization degree from 500-10000 (instant claim 24).

Aminaka teaches polarizing plates including optical layers in liquid crystal displays. Aminaka teaches using commercially available PVA having saponification degree of not smaller than 80%, which falls within Applicant's range, and a polymerization degree preferably of not smaller than 200, which is close within Applicant's recited range above. See col. 20, lines 5-12.

It would have been obvious to one having ordinary skill in the art to have modified the polarizer of Downey to include a PVA having the requirements recited because Aminaka teaches the specific PVA is a commercially available, serving as an equivalent, useful in polarizers for LCDs (see col. 20, lines 5-12) to align discotic compounds found in PVAs to assist in activation by electric or magnetic fields or light for orientation purposes or to aid in preparing an ellipsoidal polarizing plate (see col. 19, lines 35-col. 20, line 11 and col. 20, lines 22-23 of Aminaka).

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,818,624 to Downey, Jr. in view of USPN 4,620,772 to Sugimoto et al.

Downey essentially teaches the claimed invention as relied upon above.

Downey teaches a polarizing plate as above, but does not teach a liquid crystal cell of glass or plastic is disposed on a surface of a liquid cell (instant claims 30-31).

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Sugimoto teaches a similar polarizer died with iodine of PVA and on a plate where a liquid crystal cell of glass or plastic is disposed on a surface of a liquid cell (Abstract, col. 1, lines 5-30, col. 2, lines 1-5 and lines 40-68, col. 3, lines 1-68, col. 4, lines 1-55, and Example).

It would have been obvious to one having ordinary skill in the art to have modified the polarizer of Downey by using the polarizer in a LCD and including a liquid crystal cell of glass or plastic is disposed on a surface of a liquid cell to form a LCD because Sugimoto teaches the combination of elements provides for a sharp display (Abstract, col. 1, lines 5-30, col. 2, lines 1-5 and lines 40-68, col. 3, lines 1-68, col. 4, lines 1-55, and Example).

Claims 1-9, 18-23, and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,620,772 to Sugimoto et al. in view of USPN 4,818,624 to Downey, Jr.

Sugimoto teaches a similar polarizer died with iodine of PVA and on a plate where a liquid crystal cell of glass or plastic is disposed on a surface of a liquid cell using adhesive (Abstract, col. 1, lines 5-30, col. 2, lines 1-5 and lines 40-68, col. 3, lines 1-68, col. 4, lines 1-55, and Example).

Sugimoto does not teach the A/B thickness relationship or thickness requirements, method steps as claimed in instant claims 1-9, 21-22, and 26-29.

Downey teaches a polarizer comprising a stretched polyvinyl alcohol film alone further laminated to a variety of protective supports including a triacetylcellulose such as cellulose acetate butyrate or polyester such as polyethylene terephthalate (PET) via a polyvinyl alcohol (PVA) or polyurethane adhesive (col. 2, line 25-col. 3, line 11) forming a polarizing plate having a thickness per instant claims 1-8, 11, 22 and 26-29. The film thickness ranges from 0.038 to 0.051 mm (col. 2, lines 32-35), converted is 38-51 microns, 20-50 microns, not more than 60

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microns, not more than 75 microns, and at most 60 microns of instant claims 20, 23, 26. The support is between 0.038 and 0.051 mm thick (col. 2, lines 55-65). Regarding the A/B relationship, because the protective film thickness falls within the Applicant's range (taught by Downey above), and the polarizer thickness falls within Applicant's range.

Downey essentially teaches the claimed invention as relied upon above. While Downey does teach the polarizer has a thickness from about 0.038 to about 0.051, converted is 38 to 51 microns, Downey does not teach the polarizer is thinner (between 10-18 microns).

It would have been obvious to have modified the polarizer and/or LCD of Sugimoto to satisfy the thickness and A/B relationship as claimed because Downey teaches they are conventional thicknesses used in a polarizing plate as cited above. Further to make the polarizer thinner, it would have been obvious for making the overall product lighter and cost effective.

Regarding the shrinkage factor, while not taught in those exact terms, Sugimoto teaches a heat shrinkage coefficient is less than 3% less than 0.5% (col. 3, lines 50-60) and Downey teaches the polarizer containing stretched PVA film should shrink slightly noting reduced shrinkage after subjecting the film to elevated temperatures 120 - 200 degrees F for 24 hours (col. 2, lines 25-35, col. 3, lines 48-59, col. 4, lines 15-22, and Table I). Thus this teaching meets the recitation of a shrinkage force of at most 4.0 N/cm or from 1.0 to 3.7 N/cm of the polarizer alone per instant claims 1, and 18-19 ("insubstantial amount" meets "at most 4.0 N/cm"). The dimensional change rate of not more than $\pm 0.7\%$ in a longitudinal direction (MD) after being heated at 70°C for 120 hours (instant claim 9). Thus making it obvious to include a shrinkage force and dimensional change rate.

Sugimoto teaches heating, shrinking, and stretching steps (col. 3, lines 25-64, col. 4, lines 2-55, and Example).

Regarding claims 25-29, Downey teaches dyeing the hydrophilic PVA film in a treating bath (water), stretching the film due to heating (swelling treatment), treating the film with a dye such as iodine, and curing with a silylation of PVA using silane and organosilane compounds, boric acid and fuming hydrochloric acid (crosslinking treatment and agent as Applicant's disclose on page 1, line 15 and page 17, line 26 of the specification), and drying the film (see col. 2, lines 30-68, col. 3, lines 15-39, col. 4, line 15-col. 5, line 20, col. 6, lines 25-60) (instant claims 25-26). To instant claims 25-26, a dye such as iodide is present (col. 3, lines 17-18).

Thus it would have been obvious to have modified the polarizer of Sugimoto to include the method steps as recited and providing the end product made from the method because Sugimoto teaches heating, shrinking, and stretching steps, and Downey teaches the same steps in water as conventional ways to produce a polarizer and LCD as cited above. Further, regarding the claims to processes such as stretching, relaxing, and drying steps (claims 25-29), these are process limitations in a product claim. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. Patentability of an article depends on the article itself and not the method used to produce it (see MPEP 2113). Furthermore, the invention defined by a product-by-process invention is a product NOT a process. *In re Bridgeford*, 357 F. 2d 679. It is the patentability of the product claimed and NOT of the recited process steps which must be established. *In re Brown*, 459 F. 2d 531. Both Applicant's and prior art reference's product are the same.

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Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,818,624 to Downey, Jr. in view of USPN 6,361,838 to Miyatake et al.

Downey essentially teaches the claimed invention above.

Downey does not teach further comprising an optical layer selected from a reflector, transreflector, retardation plate, lambda plate, a viewing angle compensating film, or a brightness enhancement plate laminated via adhesive of instant claims 10-17.

Miyatake teaches an optical film/member that may be used to produce a multilayer structure by laminating via adhesive layers optical layers on sides of a polarizing/retardation film that includes absorption types like hydrophilic polymer films of PVA that have been stretched. See Figs. 1-3, col. 7, lines 39-65, and col. 8, lines 5-54. Such optical films, like those of instant claims 17 and 29-34 may be used to produce the following types of films: absorption type, reflection type, scattering type polarizers, retardation films including a quarter-wavelength plate, a half-wavelength plate, a retardation film comprising a uni- or biaxially or otherwise stretched film, a film comprising a film which has undergone inclined orientation, i.e., which has undergone molecular orientation also in the thickness direction, a film comprising a liquid crystal polymer, a film in which a retardation caused by a viewing angle or birefringence is compensated for, and a film comprising two or more of these retardation films superposed on each other. See col. 8, lines 1-54. Miyatake teaches a polarizing film also includes a polarizing film comprising any of the above-described polarizing films and a transparent protective layer formed on one or each side thereof for the purpose of protection against water. Miyatake does not explicitly define the aforementioned functional films as “brightness-enhanced” or a “transflector”. The Examiner takes the position that the phrase “brightness-enhanced” is a

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functional equivalent of the optical film of Miyatake at col. 7, lines 38-51 since the optical film that functions to improve perceptibility and bright displays as taught by Miyatake at col. 6, lines 50-60. The Examiner also takes the position that “transflector” is synonymous to an optical layer that reflects or scatters light as taught above in the aforementioned film types.

Thus, it would have been obvious to one having ordinary skill in the art to have modified the polarizing plate of Downey to include the variety of plates or films as claimed via adhesive because Miyatake teaches an optical layer selected from a reflector, transreflector, retardation plate, lambda plate, a viewing angle compensating film, and a brightness enhancement plate for various functions as explained above for light scattering properties, protection against water, to improve perceptibility and bright displays used in multilayered polarizers in an LCD (col. 8, lines 1-66, col. 9, lines 1-36 and col. 11, lines 32-40 of Miyatake).

Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,620,772 to Sugimoto et al. in view of USPN 4,818,624 to Downey, Jr. in view of USPN 6,361,838 to Miyatake et al.

Sugimoto and Downey are relied upon above.

The combination does not teach further comprising an optical layer selected from a reflector, transreflector, retardation plate, lambda plate, a viewing angle compensating film, or a brightness enhancement plate laminated via adhesive of instant claims 10-17.

Miyatake teaches an optical film/member that may be used to produce a multilayer structure by laminating via adhesive layers optical layers on sides of a polarizing/retardation film that includes absorption types like hydrophilic polymer films of PVA that have been stretched. See Figs. 1-3, col. 7, lines 39-65, and col. 8, lines 5-54. Such optical films, like those of instant

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claims 17 and 29-34 may be used to produce the following types of films: absorption type, reflection type, scattering type polarizers, retardation films including a quarter-wavelength plate, a half-wavelength plate, a retardation film comprising a uni- or biaxially or otherwise stretched film, a film comprising a film which has undergone inclined orientation, i.e., which has undergone molecular orientation also in the thickness direction, a film comprising a liquid crystal polymer, a film in which a retardation caused by a viewing angle or birefringence is compensated for, and a film comprising two or more of these retardation films superposed on each other. See col. 8, lines 1-54. Miyatake teaches a polarizing film also includes a polarizing film comprising any of the above-described polarizing films and a transparent protective layer formed on one or each side thereof for the purpose of protection against water. Miyatake does not explicitly define the aforementioned functional films as “brightness-enhanced” or a “transflector”. The Examiner takes the position that the phrase “brightness-enhanced” is a functional equivalent of the optical film of Miyatake at col. 7, lines 38-51 since the optical film that functions to improve perceptibility and bright displays as taught by Miyatake at col. 6, lines 50-60. The Examiner also takes the position that “transflector” is synonymous to an optical layer that reflects or scatters light as taught above in the aforementioned film types.

Thus, it would have been obvious to one having ordinary skill in the art to have modified the polarizing plate and/or liquid crystalline display of Downey and Sugimoto to include the variety of plates or films as claimed via adhesive because Miyatake teaches an optical layer selected from a reflector, transreflector, retardation plate, lambda plate, a viewing angle compensating film, and a brightness enhancement plate for various functions as explained above for light scattering properties, protection against water, to improve perceptibility and bright

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displays used in multilayered polarizers in an LCD (col. 8, lines 1-66, col. 9, lines 1-36 and col. 11, lines 32-40 of Miyatake).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,620,772 to Sugimoto et al. in view of USPN 4,818,624 to Downey, Jr. and further in view of USPN 6,064,457 to Aminaka.

Sugimoto and Downey are relied upon above.

The combination does not teach a PVA having a saponification degree of at least 75 mol% or the average polymerization degree from 500-10000 (instant claim 24).

Aminaka teaches polarizing plates including optical layers in liquid crystal displays. Aminaka teaches using commercially available PVA having saponification degree of not smaller than 80%, which falls within Applicant's range, and a polymerization degree preferably of not smaller than 200, which is close within Applicant's recited range above. See col. 20, lines 5-12.

It would have been obvious to one having ordinary skill in the art to have modified the polarizer and/or LCD of Sugimoto and Downey to include a PVA having the requirements recited because Aminaka teaches the specific PVA is a commercially available, serving as an equivalent, useful in polarizers for LCDs (see col. 20, lines 5-12) to align discotic compounds found in PVAs to assist in activation by electric or magnetic fields or light for orientation purposes or to aid in preparing an ellipsoidal polarizing plate (see col. 19, lines 35-col. 20, line 11 and col. 20, lines 22-23 of Aminaka).

PRIOR ART OF INTEREST

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USPN 4,388,375 to Hopper et al. Hopper teaches a polyester based polarizer comprising a stretched polyvinyl alcohol film laminated to a polyester support such as polyethylene terephthalate (PET) (polarizing plate) via a polyvinyl alcohol adhesive (col. 2, lines 60-61) with a coating of aqueous polyvinyl alcohol (PVA) or polyurethane on its surface

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is 571-272-1519. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tamra L. Dicus
Examiner
Art Unit 1774

October 21, 2005



RENA DYE
SUPERVISORY PATENT EXAMINER

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